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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/081,917	02/20/2002	Graham Andrew Cairns	YAMAP0802US	2193

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EXAMINER
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DI GRAZIO, JEANNE A

ART UNIT	PAPER NUMBER
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2871

DATE MAILED: 11/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/081,917

Applicant(s)

CAIRNS ET AL.

Examiner

Jeanne A. Di Grazio

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07 August 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Priority*

Priority to GB Patent Application No. 0104786.9 (Feb. 27, 2001) is claimed.

### *Response to Arguments*

Applicant's arguments, see Amendment (Aug. 7, 2003), filed August 7, 2003, with respect to the rejection(s) of claim(s) 1-27 under Zhang (6,495,858 B1) in view of Ohtani et al. (US 6,271,543 B1) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of Zhang (US 6,023,074) in view of Takemura et al. (US 5,650,636), both references submitted along with Applicant's IDSs.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 7, 10-16, and 27 rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US 6,023,074) in view of Takemura et al. (US 5,650,636).

Per claim 1: In Figure 2C, Zhang discloses an active matrix display having a storage capacitor connected to each pixel element. In Zhang, Figure 2C, thin film transistor (222) is connected to a pixel electrode (225) with a capacitor (224) in between. Zhang discloses thin film

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transistors (221 and 222) where thin film transistor (221) is connected to a capacitor (223) and a second thin film transistor (222) is connected to a second capacitor (224).

Zhang has picture element arranged in rows and columns and connected to respective data and scan lines (Col. 1, Lines 15-25). Such an arrangement is common in active matrix displays for driving the displays.

Zhang illustrates in Figure 2D a plurality of capacitor and TFTs so arranged and their interconnections. It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the elements of claims 11-16 as part of an active matrix display to further reduce OFF current as noted in Zhang (Col. 3, Lines 53-57).

Zhang does not appear to explicitly specify that a second thin film transistor connects first and second capacitors; however, Takemura (Figure 1C) discloses a similar arrangement as that of Zhang (Figure 2) and has first and second capacitors electrically connected to each other (123 and 124) across a capacitor line. In Takemura, Figure 1C, thin film transistor (122) appears to connect capacitors (123 and 124).

Takemura has the construction of Figure 1C for reducing voltage applied between source and drain of each TFT and thus reduce OFF current (Col. 5, Lines 35-51).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Takemura for reducing OFF current.

Claims 2-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US 6,023,074) in view of Takemura et al. (US 5,650,636) and further in view of Chen et al. (US '329).

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Per claims 2-6: Zhang does not appear to specify an image element; however, Chen has: a light modulating element (Col. 2, Lines 58), a transmissive or reflective image element (Col. 3, Lines 32-35), a liquid crystal element (Col. 2, Line 58) and a light emitting element (Col. 4, Lines 60-62). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Chen to incorporate the image elements into a electro-optical system (Col. 3, Lines 15-24).

Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US 6,023,074) in view of Taekmura et al. (US 5,650,636) and further in view of Maurice (US '566 B1).

Per claim 8: Zhang does not appear to have a second capacitor greater than that of a first capacitor; however, Maurice has a second capacitor with a value greater than that of the first capacitor (See claim 2 of Maurice). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Maurice if so desired in a compensation process.

Per claim 9: See Figure 3 of Maurice. It would have been obvious to one of ordinary skill in the art at the time the invention was made to connect the capacitors in series in a compensation process as so noted above.

Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US 6,023,074) in view of Takemura et al. (US 5,650,636) and further in view of Koifman et al. (US '063).

Per claims 18-20: Zhang does not appear to specify capacitors having a common plate, a common plate part of a GL and a first capacitor with a plate of SL; however, Koifman has first

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and second capacitors sharing a common plate (Col. 4, Lines 8-10), a plate part of a GL (Col. 5, Lines 53-58), and a capacitor with a plate part of a SL (Id.). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Koifman in a feedback unit and for noise reduction as noted in Koifman.

Claims 21-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US 6,023,074) in view of Takemura et al. (US 5,650,636) in view of Koifman et al. (US '063) and further in view of Williams et al. (US '743).

Per claims 21-23: Zhang does not appear to have the elements of claims 21-23; however, Williams has a plate of a heavily doped silicon layer (Col. 27, Lines 40-49), a capacitor with a gate oxide (Col. 27, Lines 35-39), and a MOS capacitor. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Williams for: (1) to make a MOS capacitor easy to use and (2) increased capacitance of a MOS capacitor, and (3) power integrated circuits as all taught in Williams (Id.).

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US 6,023,074) in view of Takemura et al. (US 5,650,636) in view of Koifman et al. (US '063) in view of Williams et al. (US '743) and further in view of Razdan et al. (US '760).

Per claim 24: Razdan does not appear to have a MOS with source and drain connected to a switch and image element; however, see Razdan (Col. 5, Lines 50-52). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Razdan for a logic input to ANMOS depending on the state of the gate terminal (Id.).

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Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US 6,023,074) in view of Takemura et al. (US 5,650,636) in view of Koifman et al. (US '063) in view of Williams et al. (US '743) and further in view of Kusunoki (US '676 B2).

Per claim 25: Zhang does not appear to have gate/source, gate/drain overlap of a MOS; however, see Kusunoki (Col. 4, Lines 65-67 and Col. 5, Lines 4-5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Kusunoki to affect gate voltage in a MOS capacitor as taught in Kusunoki.

Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (US 6,023,074) in view of Takemura et al. (US 5,650,636) in view of Koifman et al. (US '063) in view of Williams et al. (US '743) in view of Kusunoki (US '676 B2) and further in view of Hirase et al. (US '982).

Per claim 26: Zhang does not appear to have a MOS with a lightly doped drain below the gate electrode; however, see Hirase (Col. 9, Lines 63-69 and Col. 10, Lines 1-11). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Zhang in view of Hirase for excellent current drivability (Hirase at Col. 10, Lines 7-11).

### ***Conclusion***

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on April (2002) and September (2002) prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609(B)(2)(i). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeanne A. Di Grazio whose telephone number is (703)305-7009. The examiner can normally be reached on M-F.

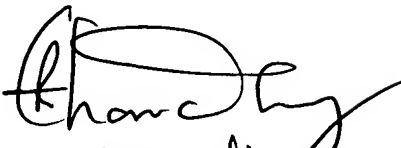
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim, can be reached on (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703)746-8741 for regular communications and (703)746-8741 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

Jeanne Andrea Di Grazio

Robert Kim, SPE

JDG

  
T. Crowder  
Primary Examiner